



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/616,052	07/09/2003	Philip D. Nguyen	2002-IP-007014U1	9517
7590	03/16/2006		EXAMINER	
Robert A. Kent Halliburton Energy Services 2600 South 2nd Street Duncan, OK 73536			NEUDER, WILLIAM P	
			ART UNIT	PAPER NUMBER
			3672	

DATE MAILED: 03/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/616,052	NGUYEN ET AL.	
	Examiner	Art Unit	
	William P. Neuder	3672	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 6-22, 35-37 and 50-53 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed. *25, 26*
- 6) ☒ Claim(s) 1-3, 6, 7, 9-15, 17-22, 28-34, 36 and 37 is/are rejected.
- 7) ☒ Claim(s) 8, 16, 27, 35 and 50-53 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>8/29/26/05, 11/7/05</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1,6,7,9-15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson et al 4042032 in view Brown et al 3681287.

Anderson discloses a method of consolidating sands in a formation. The method comprises introducing a brine preflush containing a cationic surfactant into the formation around and adjacent to the wellbore. After the preflush, a hardenable resin composition is introduced into the formation to be consolidated. The resin can be furan liquid resin mixture. After introduction of the resin, a brine overflush containing a cationic surfactant is introduced to displace the resin composition and then the resin composition is allowed to harden. Anderson is considered to disclose all of the claimed features except for the specific resin composition claimed. Brown discloses a resin composition used to consolidate sands. The resin composition comprises a furan liquid resin mixture, a solvent, an organosilane coupling agent, and an acid catalyst. It would have been considered obvious to substitute the resin composition of Brown for the resin composition of Anderson since they are considered equivalent parts for performing equivalent functions. Both are resins used to consolidate sands. As to claims 6,11,14 and 17, the exact amount of preflush, surface active agent, solvent, organosilane, and acid catalyst used would have been considered obvious since the amount of material used varies significantly based on the formation properties of the formation to be treated. As to claim 7, the furan resin in Brown can be furfuryl alcohol. As to claim 9, the solvent in Brown can be dioxane. Since dioxane is closely chemically related to dimethyl, substitution of dimethyl for dioxane would have been considered an obvious design choice. As to claim 10, tetrahydrofuran can also be used as the solvent and tetrahydrofuran is closely chemically related to furfuryl. As to claims 12 and 13, Brown teaches that the organosilane can be aminopropyltriethoxysilane. Since

aminopropyltrioxysilane is very similar to aminopropyltrimethoxysilane, it would have been considered obvious to substitute one for the other. As to claim 15, Brown teaches that the acid catalyst can be mineral acid salts.

Claims 2,3 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson in view of Brown as applied to claims 1,6,7,9-15 and 17 above, and further in view of Boles et al 4476931.

Anderson does not specifically identify the cationic agent being used. Boles also discloses use of a preflush containing a cationic surfactant for the same reasons as Anderson, which is to wet the formation. Boles teaches that his cationic agent is potassium chloride. As evidenced by their proximity on the periodic table, potassium and sodium share similar characteristics and substitution of sodium for potassium would have been considered an obvious design choice since they are so closely chemically related. As to claim 3, the exact amount of sodium chloride used would have been considered obvious since the amount used varies and depends directly upon formation characteristics. As to claim 18, the preflush of Boles is introduced below the fracture pressure.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson in view of Brown as applied to claim 1 above, and further in view of Powell et al 2004/0154799.

Powell teaches that the overflush is introduced below the fracture pressure. While it is believed inherent in Anderson that the overflush is introduced below the fracture pressure, it would have been considered obvious to introduce the overflush of Anderson

below the fracture pressure as taught by Powell since one would not want to fracture the formation till after the resin composition hardens.

Claims 20,25,26 and 28-34,36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson in view of Brown and Shu 3681287.

Claim 20 is substantially identical to claim 1 except for it calls for the additional step of fracturing and propping after the resin composition has hardened. Please see above for a description of Anderson in view of Brown. Shu teaches that after a resin composition has hardened, the formation can be fractured and propped for completion. It would have been obvious to include the additional step of fracturing and propping in the method of Anderson as taught by Shu since the purpose of treating a formation is to increase production and fracturing and propping are commonly done steps in production operations. As to claims 22,25,30,33 and 36, the exact amount of preflush, surface active agent, solvent, organosilane, and acid catalyst used would have been considered obvious since the amount of material used varies significantly based on the formation properties of the formation to be treated. As to claim 28, the solvent in Brown can be dioxane. Since dioxane is closely chemically related to dimethyl, substitution of dimethyl for dioxane would have been considered an obvious design choice. As to claim 29, tetrahydrofuran can also be used as the solvent and tetrahydrofuran is closely chemically related to furfuryl. As to claims 31 and 32, Brown teaches that the organosilane can be aminopropyltriethoxysilane. Since aminopropyltriethoxysilane is very similar to aminopropyltrimethoxysilane, it would have been considered obvious to

substitute one for the other. As to claim 34, Brown teaches that the acid catalyst can be mineral acid salts.

Claims 21,22 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson in view of Brown and Shu as applied to claims 20,25,26,28-34 and 36 above, and further in view of Boles.

Anderson does not specifically identify the cationic agent being used. Boles also discloses use of a preflush containing a cationic surfactant for the same reasons as Anderson, which is to wet the formation. Boles teaches that his cationic agent is potassium chloride. As evidenced by their proximity on the periodic table, potassium and sodium share similar characteristics and substitution of sodium for potassium would have been considered an obvious design choice since they are so closely chemically related. As to claim 22, the exact amount of sodium chloride used would have been considered obvious since the amount used varies and depends directly upon formation characteristics. As to claim 37, the preflush of Boles is introduced below the fracture pressure.


Allowable Subject Matter

Claims 8,16,27,35 and 50-53 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William P. Neuder whose telephone number is 571-272-7032. The examiner can normally be reached on Tuesday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David J. Bagnell can be reached on 571-272-6999. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



William P Neuder
Primary Examiner
Art Unit 3672

W.P.N.